

C<sup>1</sup> wherein the volume ratio of organic solvent to water ranges from about 1:1 to 10:1; and  
wherein nanosized particles are produced.

C<sup>2</sup> 12. (Amended) The method of claim 1, wherein the volume ratio of organic solvent to water ranges from about 1:1 to about 5:1.

C<sup>3</sup> 16. 17. (Amended) The method of claim 1, wherein the volume ratio of organic solvent to water ranges from about 1:1 to about 2:1 and a gel is produced.

22. (Amended) A method of producing nanosize particles using an inorganic metal salt and a mixed solvent system, comprising:  
preparing a solution including an inorganic metal salt, water, and an organic solvent having a metal salt concentration and a volume ratio of organic solvent to water;

C<sup>4</sup> incubating the mixture at a temperature less than about 90°C for a period of time;

wherein the metal salt concentration, volume ratio of organic solvent to water, temperature, and time have been manipulated to provide primary particles in the solution having a diameter of about 10 nm to about 100 nm;

wherein the primary particles are capable of forming a sol-gel coating;  
and

wherein the volume ratio of organic solvent to water ranges from about 1:1 to 10:1.

C<sup>5</sup> 29. (Amended) The method of claim 22, wherein the volume ratio of organic solvent to water ranges from about 1:1 to about 10:1.

30. (Amended) The method of claim 29, wherein the volume ratio of organic solvent to water ranges from about 2:1 to about 10:1.

C<sup>6</sup> 34. (Amended) A method of producing a sol from an inorganic metal salt at room temperature comprising:

preparing a solution including an inorganic metal salt, water, and an organic solvent having a metal salt concentration and a volume ratio of organic solvent to water;

incubating the solution at room temperature for a period of time;

wherein the metal salt concentration, volume ratio of organic solvent to water, and time are selected to provide a sol having desired characteristics;

wherein the sol is capable of forming a coating;

wherein the volume ratio of organic solvent to water ranges from about 1:1 to about 10:1; and

wherein the sol contains nanosized particles.

40. (Amended) The method of claim 34, wherein the volume ratio of organic solvent to water ranges from about 1:1 to about 10:1.

43. (Amended) A method of producing monodispersed particles at room temperature, comprising:

preparing a solution including an inorganic metal salt, water, and an organic solvent having a metal salt concentration and a volume ratio of organic solvent to water;

incubating the solution at room temperature for a period of time;

wherein the metal salt concentration, volume ratio of organic solvent to water, and time are selected to provide a sol having desired characteristics;

wherein the sol is capable of forming a coating;

wherein drying the sol to produce a powder of monodisperse particles; and

wherein the volume ratio of organic solvent to water ranges from about 1:1 to about 10:1.

50. (Amended) The method of claim 43, wherein the volume ratio of organic solvent to water ranges from about 5:1 to about 10:1.